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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/000,330	05/20/1998	TORU NAKAMURA	514420-3596	5116

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EXAMINER

NOTE, JANIS L

ART UNIT	PAPER NUMBER
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1756

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52

Please find below and/or attached an Office communication concerning this application or proceeding.

MI=22

Office Action Summary

Application No. 09/000,330	Applicant(s) NAKAMURA et al
Examiner J. DOTE	Group Art Unit 1756

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- ☒ Responsive to communication(s) filed on 5/3/02
- ☒ This action is FINAL.
- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 16-19, 21-27 is/are pending in the application.
- ☐ Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- ☒ Claim(s) 16-19, 21-27 is/are rejected.
- ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- ☐ Claim(s) \_\_\_\_\_ are subject to restriction or election requirement

Application Papers

- ☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner
- ☒ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☒ All ☐ Some\* ☐ None of the:
  - ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_
- ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

\*Certified copies not received: \_\_\_\_\_

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other \_\_\_\_\_

Office Action Summary

1. The examiner acknowledges the amendments to claims 17, 18, 22, and 23 and the addition of claims 26 and 27 filed in Paper No. 21 on May 3, 2002. Claims 16-19 and 21-27 are pending.

2. The rejection of claims 23/16-18 under 35 U.S.C. 112, second paragraph, set forth in the Office action mailed Oct. 31, 2001, Paper No. 20, paragraph 10, has been withdrawn in response to the amendment to claim 23.

3. The disclosure is objected to because of the following informalities:

(1) The specification at page 3, lines 5-6, and at page 5, line 9, discloses a polyolefin resin of a cyclic structure having an intrinsic viscosity of 0.25 dl/g or more, and a polyolefin resin of a cyclic structure having an intrinsic viscosity of less than 0.25 dl/g, respectively. Intrinsic viscosity refers to "the limiting value at infinite dilution of the specific viscosity of a polymer, referred to its concentration." See Grant & Hackh's Chemical Dictionary, fifth edition, page 621. Thus, the intrinsic viscosity of a polymer appears to be dependent on the solvent in which the polymer is dissolved and the temperature of the solution. Because the specification does not disclose the conditions under which the intrinsic viscosities are determined (e.g., solvent, temperature, etc.), the disclosure is inadequate

to inform the ordinary worker in the art of all the information necessary to make and use the claimed invention.

(2) The specification at page 3, lines 6-7, and at page 5, lines 10-11, discloses a polyolefin resin of a cyclic structure having a heat distortion temperature (HDT) determined by DIN53461-B of 70°C or higher, and a polyolefin resin of a cyclic structure having a heat distortion temperature (HDT) determined by DIN53461-B lower than 70°C. However, the specification does not define the standard DIN53461-B, or the experimental conditions under which the HDT is determined. Furthermore, the specification does not disclose the date of the particular version of the standard that was used.

Appropriate correction is required.

Applicants' arguments filed in Paper No. 21 have been fully considered but they are not persuasive.

(1) Applicants argue that a skilled artisan would "know how to determine intrinsic viscosity . . . and it would not require undue experimentation to do so."

However, the instant specification does not disclose how the intrinsic viscosity is determined, let alone any standard used to determine the intrinsic viscosity. Applicants' previously submitted evidence shows that there is more than one standard to determine intrinsic viscosity. Applicants submitted a copy of the DIN 53728 in the German language, ASTM D 1601-86 for

measuring ethylene polymers, and an incomplete copy of ISO 1628-3 standard for polyethylenes and polypropylenes. The specification does not disclose that the intrinsic viscosity is determined by any of those standards.

Moreover, the standards are not the same. As noted in the last Office action, Paper No. 20, paragraph 4, the ASTM and ISO standards do not appear to be the same. For example, the ASTM standard at page 332 discloses that the intrinsic viscosity is determined by plotting four logarithmic viscosity numbers versus their respective concentrations on rectilinear graph paper. Then a straight line is drawn through the points and extrapolated to zero concentration. The intrinsic viscosity is the intercept of the line at zero concentration. In contrast, the ISO standard at page 5 discloses that the limiting viscosity (i.e., intrinsic viscosity) is calculated by using the equation  $[\eta] = VN/(1+kc+VN)$  where  $k$  is a coefficient depending on polymer concentration and polymer structure. (The parameters  $V$ ,  $N$ , and  $c$  are not defined in the pages provided by applicants.) The ISO standard further discloses that the precision of this "test method is not known because inter-laboratory data are not available. This method may not be suitable for use in specifications or in case of any disputed results as long as these data are not available."

In view of the evidence on the present record, because the specification does not disclose how the intrinsic viscosity is

determined, nor does the specification disclose what standard is used to determine the viscosity, it would require undue experimentation for a person having ordinary skill to determine the intrinsic viscosities recited in the instant claims.

The experimental conditions under which the intrinsic viscosities are determined are essential subject matter since they are necessary to describe and enable the instant claimed subject matter. Essential subject matter must be disclosed in the specification as filed.

Applicants are reminded that essential subject matter cannot be incorporated by reference to non-patent literature, but must be fully disclosed in the specification as filed.  
MPEP 608.01(p)A, 8th edition, Aug. 2001.

(2) Applicants assert that skilled artisan "would know how to determine . . . HDT and it would not require undue experimentation to do so." Applicants state that they previously submitted an English-translation of DIN 53461-B on Apr. 12, 2001.

However, the instant specification does not adequately define DIN 53461-B. Nor does the instant specification disclose the experimental conditions under which the HDT was determined. The determination of HDT is essential matter, since it is necessary to describe and enable the instant claimed subject matter. Essential subject matter cannot be incorporated by

reference to non-patent literature, but must be fully disclosed in the specification as filed. MPEP 608.01(p)A.

Moreover, there is no evidence on the present record to show that the version of the German standard DIN 53461-B described in the English translation is that used in the instant specification, because the specification does not disclose the version (i.e., date) of the standard disclosed in the specification. The organizations implementing these standards have the authority to modify standards. Thus, the connection of the instant claims to these standards, as recited, may vary over time. If the standard were to change, the instant disclosure would no longer support the claim limitations; in short, the recited claim limitations would not be enabled. This is made evident by the ISO standard provided by applicant in Paper No. 17, filed on Jul. 23, 2001, Exhibit 3, page 1, which states that "all standards are subject to revision, and parties to agreements based on this part of ISO 75 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below." The instant specification simply does not disclose that the standard applied at the filing date of the instant application was that disclosed in the English translation. Hence, it would be undue experimentation for a person having ordinary skill in the art to determine the HDT recited in the instant claims, because that person would not know

what version of the standard is to be used in determining the recited HDT. In fact, any such "determination" would inevitably require speculation.

Accordingly, for the reasons given above, the objections stand.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 17, 18, 19/(17,18), 21/(17,18), 22/(17,18), 23/(17,18), 24/(17,18), and 25/(17,18) are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 17 and 18, and claims dependent thereon, are indefinite in the limitations "an intrinsic viscosity (i.v.) of less than 0.25 dl/g" and "an i.v. of 0.25 dl/g or more" because it is not clear what are the scopes of said limitations. Neither the instant claims nor the specification define the conditions under which the recited intrinsic viscosities are determined. See the discussion in item (1) of paragraph 3, supra.



Claims 17 and 18 and claims dependent thereon, are indefinite in the limitations "a heat distortion temperature (HDT) by DIN53461-B (August 2, 1995) of lower than 70°C" and "a HDT of 70°C or higher" because it is not clear what are the scopes of said limitations. The instant specification does not define the standard DIN53461-B. The instant specification does not disclose the conditions and criteria used in the standard used to determine the HDT, nor does it disclose the date or version of DIN53461-B that was relied on in the specification. (The date August 2, 1995 is not the date or version of the standard, but is the one of the foreign priority dates of the present application. See applicants' admission, Paper No. 21, page 9, lines 5-7.) Standards can and do change over time: hence it is not clear what version of DIN53461-B was used, nor what version is intended in the claims.

Claim 19/17,18 is indefinite in the phrase "Mw/Mn ratio . . . is from 1 to 2.5" because it is not clear to what material the Mw/Mn ratio refers, e.g., the low-viscosity resin, or the high-viscosity resin, or the "polyolefin having a cyclic structure," which comprises both the low- and high-viscosity resins.

Claim 22/17,18 is indefinite in the phrase "binder resin includes said polyolefin resin having a cyclic structure having an intrinsic viscosity (i.v.) of 0.25 dl/g or more . . . in a

proportion less than 50% by weight based on the binder resin" (emphasis added) because the polyolefin resin is outside the scope of instant claims 17 and 18. Applicants state in Paper No. 11 filed on Jul. 18, 2000, page 10, lines 14-17, that "the proportion of less than 50% by weight" can "indeed be 0%." Claims 17 and 18, however, require the presence of the "high-viscosity" resin.

Applicants' arguments filed in Paper No. 21 have been fully considered but they are not persuasive.

(1) Claims 17 and 18 - the intrinsic viscosity limitation.

Applicants argue that "the instant claims, read in light of the specification, apprise a skilled artisan of both the utilization and scope of the invention, and as the language is as precise as the subject matter permits, the instant claims are definite" (emphasis original). Applicants also assert that the skilled artisan would have known that the viscosity is routinely determined by the standards set forth in the specification.

As discussed in paragraph 3, item (1), supra, the instant specification provides no guidance on how the intrinsic viscosity is determined. Contrary to applicants' assertions, the instant specification does not disclose any standard used to determine the viscosity. Applicants have not indicated where these alleged standards are disclosed in the instant specification. As discussed in paragraph 3 supra, the standards do not appear to be

the same. Thus, for the reasons set forth in the above rejection and in paragraph 3, supra, the rejection with respect to "intrinsic viscosity" stand.

(2) Claims 17 and 18 - the HDT limitation.

Applicants argue that when read in light of the specification, the instant claims are definite. Applicants assert that by amending the claims to recite the priority date of the application as the version of the DIN 53461 standard renders the rejection moot. Applicants argue that, "consequently, any hypothetical change of, or revisions to, DIN 53461 would be irrelevant because, at the time of filing of the instant application (i.e., the August 2, 1995 priority date), the skilled artisan would readily understand that the DIN 53461 . . . could be used to practice the instantly claimed invention."

Applicants' arguments are not persuasive. As discussed in paragraph 3, item (2) supra, the instant specification does not adequately define DIN 53461-B. The determination of HDT is essential subject matter. Essential subject matter cannot be incorporated by reference to non-patent literature, but must be fully disclosed in the specification as filed. In addition, the amendment did not overcome the rejection because the recitation of the priority date of the application does not disclose what version of the standard was used in determining the HDT values recited in the instant claims. As shown by the evidence on the

present record, there is more than one version of DIN 53461. Applicants' English-translation of DIN 53461-B in Paper No. 17, filed on Jul. 23, 2001, Exhibit 1, page 1, is for the Jan. 1987 version. The translation states that the 1987 version replaced the version issued Sep. 1969. There is no disclosure in the specification as filed that permits the artisan to readily determine what version of DIN 53461-B was used to determined the HDT values recited in the instant claims.

Applicants further argue that it is common practice to recite DIN standards in both the claims and in the specification, citing four US patents as evidenced.

The recitation of a foreign standard in a claim is not objectionable when the originally filed specification provides a dated standard or an adequate definition of the standard. However, neither situation applies in the instant application.

Accordingly, for the reasons set forth above and in paragraph 3 above, the rejection of claims 17 and 18 stand.

(3) Claim 19.

Applicants argue that the ratio can refer to either low or high viscosity resins as disclosed at pages 5-6 of the specification.

However, claim 19 does not recite what resin has said ratio. Thus, the rejection stands. In addition, contrary to applicants' above statement, the disclosure of the ratio Mw/Mn of 1 to 2.5 in

the instant specification at page 4, lines 19-22, is with respect to the low viscosity resin, not the high viscosity resin. Thus, applicants' statement is itself evidence of the indeterminate character of claim 19.

(4) Claim 22.

Applicants argue that the amendment to claim 22 filed in Paper No. 22 renders the rejection moot.

However, for the reasons discussed in the rejection, the amendment to claim 22 did not overcome the rejection. The examiner stated, in the last Office action (Paper No. 20) in the paragraph bridging pages 11 and 12, that if the polyolefin resin recited in claim 22 refers to the "high-viscosity resin" recited in claims 17 and 18, the claim is indefinite because it is outside the scope of claims 17 and 18. Applicants did not address this issue in their amendment.

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 17, 18, 19/(17,18) and 21-25/(17,18) are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Instant claims 17 and 18 recite a low viscosity resin having a "heat distortion temperature (HDT) by DIN53461-B (August 2, 1995) of less than 70°C" and an "intrinsic viscosity of less than 0.25 dl/g," and a high viscosity resin having a "HDT of 70°C or more" and an "i.v. of 0.25 dl/g or more." Claim 22 recites a polyolefin resin with a cyclic structure having a "heat distortion temperature (HDT) by DIN53461-B (August 2, 1995) of 70°C or more" and an "intrinsic viscosity of 0.25 dl/g or more."

However, the instant specification does not disclose adequately how these experimental parameters are determined. The specification at page 3 merely discloses HDT by DIN53461-B and the recited intrinsic viscosity. The specification does not disclose what is DIN53461-B, nor what version or date of the standard was used. Furthermore, the organizations implementing the standard DIN53461-B have the authority to modify standards, so any connection the instant claims may have to this standard, as recited, may vary over time. If the standard were to change, the disclosure would no longer support the claim limitations, and therefore the claim limitations would not be enabled.

Moreover, the specification is silent on the experimental conditions under which the intrinsic viscosity is determined. The specification does not disclose that the viscosity is determined by any known standard. As argued supra, the intrinsic viscosity of a polymer appears to be dependent on the solvent in which the polymer is dissolved and the temperature of the solution.

Accordingly, it would require undue experimentation for one of ordinary skill in the art to determine the experimental parameters needed to obtain the instant claimed numerical ranges.

Applicants' arguments filed in Paper No. 21 have been fully considered but they are not persuasive.

Applicants argue that the skilled artisan would readily understand the measurement of intrinsic viscosity and HDT are routinely determined by the standards set forth in the specification and would, in turn, know what standard to use, and would not require undue experimentation to practice the claimed invention. Applicants refer to Wands citing the factors for undue experimentation.

Applicants' arguments are not persuasive for the reasons set forth in paragraphs 3 and 5 supra. In addition, undue experimentation is required to determine the intrinsic viscosity and HDT for the following reasons:

As discussed in paragraph 3 supra, the intrinsic viscosity of a polymer appears to be dependent on the solvent in which the polymer is dissolved and the temperature of the solution. The specification gives no guidance on what solvent or temperature is used. The working examples merely recite the values of intrinsic viscosity. Nor does the specification disclose what standard can be used to determine the intrinsic viscosity. In addition, as discussed in paragraph 3 above, applicants' previously submitted evidence shows that there is more than one standard to determine intrinsic viscosity. Moreover, the standards do not appear to be the same. The ISO standard even discloses that the precision of this "test method is not known because inter-laboratory data are not available. This method may not be suitable for use in specifications or in case of any disputed results as long as these data are not available." Because of (1) the infinite choices of solvents and temperatures, (2) the various methods in determining the intrinsic viscosity by the different standards (which may or may not be reliable for the particular situation), and (3) the total lack of guidance from the instant specification, it would require undue experimentation for a person having ordinary skill to determine the intrinsic viscosities recited in the instant claims.

As discussed in paragraphs 3 and 5 above, the instant specification does not adequately define DIN 53461-B. Nor does



the instant specification disclose the experimental conditions under which the HDT was determined. The date of Aug. 2, 1995 is one of the foreign priority dates of the instant application, not the issue date of the standard. The organizations implementing these standards have the authority to modify standards (as shown in the translation provided by applicants). Thus, the connection of the instant claims to these standards, as recited, may vary over time. If the standard were to change, the instant disclosure would no longer support the claim limitations; in short, the recited claim limitations would not be enabled. This is made evident by the ISO standard provided by applicant in Paper No. 17, Exhibit 3, page 1, which discloses that "all standards are subject to revision, and parties to agreements based on this part of ISO 75 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below." In addition, the evidence on the present record shows that there at least two versions of the DIN 53561-B standard, Jan. 1987 and Sep. 1969. Hence, it would be undue experimentation for a person having ordinary skill in the art to determine the HDT recited in the instant claims, because that person would not know what version of the standard is to be used in determining the recited HDT. In fact, any such "determination" would inevitably require speculation.

Accordingly, for the reasons given above, the rejections stand.

8. Claims 17, 18, 19/(17,18), and 21-25/(17,18) are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Instant claims 17 and 18 recite a low viscosity resin having a "heat distortion temperature (HDT) by DIN53461-B (August 2, 1995) of less than 70°C" and a high viscosity resin having a "HDT of 70°C or more." Claim 22 recites a polyolefin resin with a cyclic structure having a "heat distortion temperature (HDT) by DIN53461-B (August 2, 1995) of 70°C or more" and an "intrinsic viscosity of 0.25 dl/g or more."

The originally filed specification does not provide an adequate written description of the standard DIN 53561-B as the version of August 25, 1995. The originally filed specification was silent with respect to the version used. See for example, page 3, lines 6-7. Applicants in Paper No. 21, page 9, lines 7-8, state that priority [foreign] date August 2, 1995 is version of the DIN 53561-B standard used. However, the evidence on the present record shows that there at least two versions of

the DIN 53561-B standard, Jan. 1987 and Sep. 1969. There is no evidence on the present record that a version of the standard was issued on Aug. 2, 1995. Nor is there any disclosure in the originally filed specification that would lead a person having ordinary skill in the art that the version of the standard used in the instant specification is that of Jan. 1987.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f), or (g) prior art under 35 U.S.C. 103(a).

10. Claims 16, 23/16, 24/16, and 25/16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent 2-184864 (JP'864) (see PTO translation for cites) combined with page 13 of Grant & Hackh's Chemical Dictionary, fifth ed., and Diamond, Handbook of Imaging Materials, page 169.

JP'864 discloses a toner that comprises a colorant and a binder resin comprising a "cyclopentadiene-type" polymer (which is a polyolefin resin having a certain cyclic structure). Translation, page 2, lines 8-14; Working Examples 8-24 at pages 20-22; and JP'864, page 631. The cyclopentadiene-type copolymer can be a copolymer obtained from dicarboxy diallyltricyclo(5,2,1,0<sup>26</sup>)-decane ("DDD"), lauryl methacrylate, methacrylic acid, and divinylbenzene. Translation, Polymerization Example 2 at pages 7-8. The copolymer obtained from DDD comprises carboxy groups, thereby meeting the limitations of claim 24/16. DDD comprises saturated tricyclo(5,2,1,0<sup>26</sup>)-decane and allyl groups, thereby meeting the limitation of "alicyclic compound having a double bond" recited in instant claim 16. Divinyl benzene is a diene monomer. Methacrylic acid is an alpha olefin acid. See Grant & Hackh's Chemical Dictionary, fifth ed., page 13. Thus, the copolymer comprises saturated tricyclo(5,2,1,0<sup>26</sup>)-decane groups and carboxy groups, and meets the limitations of claims 16 and 24/16. The copolymer is also crosslinked by divinyl benzene, a diene, and therefore meets the limitation of claim 25/16.

JP'864 discloses that JP'864's toner can be fixed by heating and that it prevents toner offset. Translation, page 4, line 24, and page 5, line 7. JP'864 further discloses that since the cyclopentadiene-type polymer has a large number of allyl groups,

the allyl groups can readily undergo a polymer radical reaction. Thus, the toner can be fixed by ultraviolet-cure. In other words, the cyclopentadiene polymer can be crosslinked. JP'864 discloses that its toner provides images with increased density, and has good resolving power and fixing properties. Translation, page 4, lines 17-25; page 5, lines 16-25.

JP'864 does not exemplify a toner that comprises a charge controlling agent. However, JP'864 discloses that a polarity-controlling agent, i.e., a charge control agent, can be incorporated in its toner. Translation, page 6, lines 21-22. The use of charge control agents is well-known in the art. Diamond discloses that it is known to add charge control additives to toners when the pigment blended into the polymer resin does not give an adequate charge level or rate of charging. This applies to both negative and positive charging applications. Diamond further discloses a number of known charge control agents, including nigrosine and metal complexes, that effectively give the toner a positive or negative charge. Diamond, page 159, section 4.2.3.

It would have been obvious to a person having ordinary skill in the art, in view of the teachings of JP'864 and Diamond, to add a charge control agent to the toner disclosed by JP'864, because that person would have had a reasonable expectation of successfully obtaining a positively or negatively charged toner

having an adequate charge level and rate of charging that provides toner images with increased density, and good resolving power and fixing, as taught by JP'864.

Applicants' arguments filed in Paper No. 21 have been fully considered but they are not persuasive.

Applicants argue that "JP'864 relates to a developer" (emphasis original). Applicants assert that JP'864's cyclopentadiene-type copolymer resin differs from the copolymer derived from an alpha-olefin and an alicyclic compound having a double bond recited in the instant claims. Applicants argue that JP'864's copolymer is produced via radical polymerization, while the "instantly used binder resins are prepared by . . . a polymerization method using metallocene catalysts or Ziegler catalysts."

Applicants' arguments are not persuasive. As discussed in the rejection, JP'864 teaches a toner. It is well-known in the electrophotographic arts that a developer for electrophotographic applications comprise a toner. See the translation of JP'864, page 2, lines 17-20; and the instant specification, page 8, lines 5-6, which discloses that the "toner of the present invention may be used as a toner for one component developers or two-component developers" (emphasis added).

In addition, the instant claims do not exclude JP'864's copolymer. Instant claim 16 merely recites "a copolymer derived

from an alpha-olefin, an alicyclic compound having a double bond and, optionally a diene monomer." The instant specification does not define the terms "alpha olefin" or "alicyclic compound having a double bond." The specification at page 4, lines 31-34, merely discloses "a copolymer of an alpha olefin, such as ethylene, propylene or butylene, with an alicyclic compound having a double bond, such as norbornene or cyclohexene." Instant claim 16 and the claims dependent thereon are not limited to copolymers made from those compounds. The term "alicyclic compound" is usually defined as a compound containing a carbon containing ring whose properties are aliphatic rather than aromatic. See Grant and Hackh's Chemical Dictionary, fifth edition, page 22. As discussed in the above rejection, JP'864's copolymer is within the limitations recited in instant claims 16, 24/16, and 25/16. The evidence presented in the rejection and above clearly shows that JP'864's copolymer is within the limitations recited in the instant claims. Applicants have not come forward with any probative evidence to support their allegation that JP'864's copolymer is not within the limitations recited in the instant claims.

Moreover, the instant claims do not recite that the copolymer is obtained by polymerization with a metallocene or a Ziegler catalyst. Applicants cannot argue for patentability based on limitations that are not present in the in claims.

Applicants further argue that a skilled artisan would understand that a polarity control agent is not the same as a charge control agent. Applicants argue that a charge control agent ensures stable charge; a polarity control agent does not.

Applicants have not provided any evidence to support their allegation that a polarity control agent is not another name for a charge control agent. The term "polarity" is usually defined as the condition of being positive or negative with respect to some reference point, or object, as electricity. See Webster's New World Dictionary, third college ed., page 1044. As set forth in the above rejection, Diamond discloses that charge control additives are added to toners to provide adequate charge level or rate of charging, in both negative and positive charging applications. Diamond, page 159, section 4.2.3. Thus, the predominance of the objective evidence of record indicates that a person of ordinary skill in the art would have recognized that the JP'864's term "polarity control agent" is another name for "charge control agent."

Accordingly, for the reasons set forth above and in the rejection, the instant claimed toner is rendered obvious over the prior art.

11. Claims 16, 21/16, 23/16, 26, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,817,843 (Masuda)



combined with US 5,741,617 (Inaba) and US 5,179,171 (Minami), as evidenced by the Aldrich Catalog, page 1063, and Polymer Technology Dictionary, page 487.

Masuda discloses a toner that comprises a colorant, a quinizarin dye, and a binder resin. Col. 24, lines 57-62, and examples 63-88 at col. 50. Masuda discloses that said toner provides clear color lightfastness images free from fogging. Col. 50, lines 32-44.

Masuda discloses that toner can further comprise an "antistatic agent" such as metals of salicylic acid, organic salts of boron, quaternary ammonium compounds, metal complexes of imidazole, and pyridinium salts. Col. 25, lines 33-39. Masuda discloses that said antistatic agents control the electrification of the toner without affecting the color tone of the toner. Col. 25, lines 29-32. Masuda does not identify the antistatic agents as charge control agents as recited in the instant claims. However, the Masuda's antistatic agents have the same function as charge control agents, namely, to control the charge level, i.e., the electrification, of the toner. Inaba identifies metals of salicylic acid, boron compounds, quaternary ammonium compounds, and imidazole compounds as charge control agents. Col. 13, lines 51-60. Accordingly, the antistatic agents disclosed by Masuda are charge control agents. The burden is on applicants to prove otherwise. In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

Masuda does not disclose that the binder resin is a polyolefin resin having a cyclic structure as recited in the instant claims. However, Masuda discloses that the binder resin can be any binder resin known in the art. Col. 24, lines 61-62. Masuda further discloses that the binder resin can be alicyclic hydrocarbon resins. Col. 25, lines 23-24.

Minami discloses a random copolymer resin having a cyclic structure that meets the limitations of the instant claims. Minami discloses that the low molecular weight random copolymers can be used as electrophotographic toners. Col. 15, lines 58-59, and col. 16, line 2. The random copolymer is obtained from ethylene and at least one cycloolefin, such as bicyclo[2,2,1]hept-2-ene, which is incorporated in the polymer chain without ring opening. Col. 4, line 30, to col. 8, line 5, and especially col. 8, line 50. The random copolymer comprises saturated alicyclic groups meeting the limitations of claim 16. Ethylene and the cycloolefin meet the limitations of claims 16 and 21/16. A copolymer of ethylene and bicyclo[2,2,1]hept-2-ene, which is another name for norbornene (see Aldrich Catalog, page 1063), meets the copolymer recited in instant claim 26. Minami discloses that said copolymer is formed by copolymerizing ethylene and the cycloolefin in the presence of a catalyst. The catalyst comprises a soluble vanadium compound and an aluminum alkyl compound. Col. 8, line 11, to col. 9, line 50. Such a

catalyst is recognized as a Ziegler-Natta catalyst system. See Polymer Technology Dictionary, page 487. Thus, Minami's copolymer is made by a Ziegler catalyst as recited in instant claim 27.

Minami teaches that his random copolymers have excellent transparency, thermal resistance, dielectric properties, and mechanical properties. Col. 4, lines 16-21.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Minami, to use Minami's random copolymer obtained from ethylene and a cycloolefin, such as norbornene, as the binder resin in the toner disclosed by Masuda, because that person would have had a reasonable expectation of successfully obtaining an electrophotographic color toner having the properties disclosed by Masuda and excellent transparency.

Applicants' arguments filed in Paper No. 21 have been fully considered but they are not persuasive.

Applicants argue that the skilled artisan in the art would not be motivated to use the instantly claimed cyclic olefin copolymer in Masuda's toner. Applicants argue that the skilled artisan would consider a cyclic olefin copolymer to be distinguishable from Masuda's disclosure of alicyclic hydrocarbon resin. Applicants argue that there is no motivation to use a cyclic olefin as recited instant claims in Masuda.

As discussed previously in Paper No. 20, paragraph 11, applicants' arguments are contradicted by Masuda. As set forth in the rejection, Masuda discloses that the toner binder resin can be any well-known toner binder resin in the art. Masuda discloses that such resins include "alicyclic hydrocarbon resins." Alicyclic hydrocarbon resins encompass Minami's cyclic olefin copolymers. Minami teaches cyclic olefin copolymers, which meet the cyclic polyolefin recited in the instant claims. Minami discloses that his copolymers have excellent thermal resistance in addition to excellent dielectric properties, mechanical properties, and transparency. Minami teaches that said copolymers can be used in electrophotographic toners. Accordingly, the references provide reason, suggestion, and motivation, to use Minami's cyclic olefin copolymer as the toner binder resin in Masuda's toner.

Applicants again argue that Inaba and Minami are related to waxes. Applicants argue that the instant claimed toner does not use a wax. Applicants argue that waxes are not binder resins. Applicants argue that both Inaba and Minami teach away from the instant claimed invention because the skilled artisan would have known that when a wax is used as a toner binder resin, the toner is fixed to a substrate by "cold pressure fixing," while applicants' invention is directed to a toner used in forming an image that is fixed by a "heat roller fixing means."

Applicants' arguments are not persuasive. As stated in previously in Paper No. 20, Inaba is cited to show that the compounds disclosed as antistatic agents by Masuda are also known in the art as charge control agents, not for Inaba's disclosure of waxes. Furthermore, the instant claims do not exclude the cyclic polyolefin copolymer recited in the instant claims from being a wax. Nor does the instant specification exclude waxes from the definition of the cyclic polyolefin copolymer recited in the instant claims. Applicants cannot argue for patentability based on limitations that are not present in the instant claims. Instant claim 16 merely recites that the binder resin includes a polyolefin copolymer resin having a cyclic structure. Instant claim 26 recites that the binder resin "includes a copolymer having a cyclic structure . . ." In addition, Masuda discloses that it is well-known in the art that waxes, such as paraffin waxes, can be use be used as toner binder resins. Masuda, col. 25, line 25.

Moreover, applicants' arguments that adherence of a toner comprising a wax binder resin to a substrate is only achieved by cold pressure fixing, not by a heat roller fixing means, are mere attorney arguments. There is no evidence on the present record to support applicants' allegation. The instant claims merely recite that the toner can be used for "developing an . . . image . . . wherein the . . . image is fixed using a heat roller fixing

means." That recitation is intended use. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). Furthermore, the recitation merely requires that the toner be capable of being fixed with a heat roller fixing means. A person having ordinary skill in the art would have known to adjust the fixing temperature to soften the toner's wax binder resin, so the toner would be fixed to the substrate, such as paper. There is no evidence on the present record showing that a toner comprising Minami's low molecular weight cyclic polyolefin, let alone a toner wax binder resin, is not capable of being fixed with a heat roller fixing means. As set forth in the rejection, Minami teaches a cyclic polyolefin that meets the cyclic polyolefin recited in instant claims 16, 21/16, 26 and 27. Minami teaches that his low molecular weight cyclic olefin copolymers can be used in electrophotographic toners. Thus, for the reasons set forth in the above, and in the rejection, Minami does not teach away from the cyclic polyolefin resin recited in the instant claims.

Accordingly, for the reasons set forth above and in the rejection, Masuda combined with the teachings in Inaba and Minami renders obvious the instant claimed toner.

12. The reference cited in the Search Report PCT has been considered, but will not be listed on any patent resulting from this application because it was not provided on a separate list in compliance with 37 CFR 1.98(a)(1). In order to have the references printed on such resulting patent, a separate listing, preferably on a PTO-1449 form or PTO/SB/08A form, must be filed within the set period for reply to this Office action.

13. Applicants' request for an interview has not been granted because it is not apparent from applicants' response filed in Paper No. 21 that an interview would result in expediting the final disposition of the application. Applicants' amendment filed in Paper No. 21 raised new grounds of rejections as set forth supra in this Office action and did not overcome the rejections set forth in the last Office, Paper No. 20.

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is

reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. The papers filed on May 3, 2002 (certificate of mailing dated Apr. 30, 2002) have not been made part of the permanent records of the United States Patent and Trademark Office (Office) for this application (37 CFR 1.52(a)) because of damage from the United States Postal Service irradiation process. The above-identified papers, however, were not so damaged as to preclude the USPTO from making a legible copy of such papers. Therefore, the Office has made a copy of these papers, substituted them for the originals in the file, and stamped that copy:

COPY OF PAPERS  
ORIGINALLY FILED

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If applicant wants to review the accuracy of the Office's copy of such papers, applicant may either inspect the application (37 CFR 1.14(d)) or may request a copy of the Office's records of such papers (i.e., a copy of the copy made by the Office) from the Office of Public Records for the fee specified in 37 CFR 1.19(b)(4). Please do not call the Technology Center's Customer Service Center to inquiry about the completeness or accuracy of Office's copy of the above-identified papers, as the Technology Center's Customer Service Center will not be able to provide this service.

If applicant does not consider the Office's copy of such papers to be accurate, applicant must provide a copy of the above-identified papers (except for any U.S. or foreign patent documents submitted with the above-identified papers) with a



statement that such copy is a complete and accurate copy of the originally submitted documents. If applicant provides such a copy of the above-identified papers and statement within **THREE MONTHS** of the mail date of this Office action, the Office will add the original mailroom date and use the copy provided by applicant as the permanent Office record of the above-identified papers in place of the copy made by the Office. Otherwise, the Office's copy will be used as the permanent Office record of the above-identified papers (i.e., the Office will use the copy of the above-identified papers made by the Office for examination and all other purposes). This three-month period is not extendable.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (703) 308-3625. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (703) 308-2464. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9311 (Rightfax) for after final faxes, and (703) 872-9310 for other official faxes.

Any inquiry of papers not received regarding this communication or earlier communications, or of a general nature or relating to the status of this application or proceeding should be directed should be directed to the Customer Service Center of Technology Center 1700 whose telephone number is (703) 306-5665.

JLD  
July 21, 2002

*Janis L. Dote*  
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